

THE GENUS EUPARAGIA IN NORTH AMERICA (Hymenoptera, Vespidae, Euparagiinae)

BY RICHARD M. BOHART
University of California, Davis

The genus *Euparagia* has been known from three species of small, stout, masarid-like wasps from northern Mexico, New Mexico, California and Nevada. Since publication of a synopsis on the genus (R. Bohart, Pan-Pac. Ent. 14:136-139, 1938) considerable additional material has been examined which has extended the known range of the genus to include Arizona and Texas, and has added three species which are described below. Much of the new material was sent to me by P. H. Timberlake, some of it was personally collected, and the remainder was collected by E. C. Van Dyke, J. Bequaert, E. G. Linsley, A. T. McClay and F. T. Scott.

KEY TO EUPARAGIA FEMALES

1. Head with 4 shiny swellings across vertex.....*maculiceps*
(Cameron)
- Head without shiny swellings across vertex..... 2
2. Propodeum all black.....*scutellaris* Cresson
- Propodeum partly or entirely reddish..... 3
3. Antennal flagellum black except for an obscure row of reddish spots beneath; body about 7.0 mm. long....*boregoensis* R. Bohart
- Antennal flagellum all reddish or with brownish above..... 4
4. Propodeum marked with dark red.....*platiniceps* R. Bohart
- Propodeum marked with light red..... 5
5. Lateral ocellus separated by nearly twice its diameter from compound eye; body about 7.0 mm. long; abdomen black, red and ivory.....*desertorum* R. Bohart
- Lateral ocellus separated from compound eye by about its diameter; body 4.5 - 6.0 mm. long; abdomen red and yellowish ivory.....*timberlakei* R. Bohart

KEY TO EUPARAGIA MALES

1. Head with 4 shiny swellings across vertex.....*maculiceps*
(Cameron)
- Head without shiny swellings across vertex..... 2
2. Front femur with a pronounced knob at the base..... 3
- Front femur without a pronounced knob at the base..... 5

3. Knob of front femur narrow, sharp, somewhat double, surpassed by projection of trochanter; markings ivory and black, antennal flagellum yellowish beneath, brown or black above.....*scutellaris* Cresson
- Knob of front femur with a knife-like edge, obtuse, not surpassed by projection of front trochanter; propodeum and abdomen with some reddish markings at least..... 4
4. Antennal flagellum entirely black or very dark brown, last segment incurved beneath in profile; propodeum dark except for reddish near abdominal insertion.....*boregoensis* R. Bohart
- Antennal flagellum light red beneath, dark red or reddish brown above, last segment slightly outcurved beneath in profile; propodeum usually extensively reddish.....*desertorum* R. Bohart
5. Front femur with an obtuse angle toward base beneath; abdomen black, brownish red and ivory; eyes grey; lateral ocellus separated by slightly more than its diameter from compound eye.....*platiniceps* R. Bohart
- Front femur evenly rounded toward base beneath; abdomen red and yellowish ivory; eyes greenish grey; lateral ocellus separated by slightly less than its diameter from compound eye.....*timberlakei* R. Bohart

Euparagia timberlakei R. Bohart, new species

Male. Black, extensively marked with light red and yellowish ivory, eyes greenish grey. Yellowish ivory are: mandible mostly, clypeus, spot on scape, dot near hind ocellus, pronotum and tegula mostly, parategula, mesopleural spot, square mesonotal spot, scutellum except for emarginate basal black area, tibiae and tarsi mostly, femora apically, emarginate apical bands on abdominal tergites and traces on sternites. Light red are: pedicel and flagellum, lower half of propodeum, femora mostly, tibiae and tarsi partly, basal portions of abdominal tergites except at extreme base of I (red occupies more than half of I and II), sternites mostly. Wings transparent, hyaline. Pubescence thick and silvery on face and mesopleuron. Antenna stout, clavate, third segment shorter than diameter of tenth segment, last segment cone-shaped, not incurved below, about as long as broad at base and pointed at tip; clypeus bidentate and deeply cleft at apex; lateral ocellus removed by less than its diameter from compound eye. Propodeal concavity not limited by a superior ridge; front femur similar in shape to mid femur, broadly rounded toward base; front trochanter with a slender process which is about as long as seventh antennal segment. Seventh sternite with a median groove, apical margin slightly incurved. Length of body to apex of second tergite 5.0 mm.

Female. Markings about as in male except as follows: mandible mostly red, clypeus black except for red tip, scape dark. Clypeus minutely bidentate at apex. Length of third antennal segment

about as great as that of tenth but only about two-thirds as great as width of tenth. Lateral ocellus removed by about 1.2 diameters from compound eye.

Holotype, male, Calif. Acad. Sci., Ent., No. 5994, 6 miles west of PANAMINT SPRINGS, INYO CO., CALIFORNIA, on *Eriogonum trichopodum*, June 5, 1939 (R. M. Bohart). Paratypes, 3 males and 4 females, same data as type; 2 males and 4 females, same data as type, 2 males and 4 females, near Palm Springs, Riverside Co., California, on *Eriogonum trichopodum*, June 8 to June 28 (P. H. Timberlake, E. C. Van Dyke); 1 male Lone Pine, Inyo Co., California, June 13, 1937 (E. C. Van Dyke); 1 male, Lee Canyon, Mt. Charleston, Nevada, May 25, 1940 (G. E. Bohart); 1 male and 2 females, Beaver Dam, Arizona, on *Eriogonum trichopis*, June 20, 1939 (P. H. Timberlake). Paratypes have been placed in the collections of the U. S. National Museum, California Academy of Sciences, University of Kansas, Museum of Comparative Zoology at Harvard, American Museum of Natural History, P. H. Timberlake and the writer.

The narrowed frons, indicated by the proximity of the ocelli to the compound eyes, is diagnostic for this species. Also, it is the only one known with green eyes. The species is named for P. H. Timberlake who has generously turned his relatively large collection of *Euparagia* over to me for study.

Euparagia desertorum R. Bohart, new species

Male. Black, marked with reddish and ivory, eyes gray. Ivory are: mandible mostly, clypeus except narrowly at sides, spot on scape, dot near hind ocellus, pronotum mostly, mesopleural spot, tegula mostly, square mesonotal spot, broad hind margin of scutellum, lateral propodeal dot, tibiae and tarsi mostly, femora at apex, broad emarginate apical bands on abdominal segments comprising about two thirds of visible tergal area. Brick red are; mandible apically, flagellum mostly but darker above, tegular spot, small spots on propodeum below, femora largely (black at base), tibiae and tarsi partly, abdominal tergite I at side, emarginations of tergites I to VII (base of I to III black). Wings transparent, hyaline. Pubescence thick and silvery on face and mesopleuron. Antenna somewhat clubbed, third segment curved above, straight below, pointed at tip; clypeus bidentate and deeply cleft at apex; lateral ocellus removed by about 1.5 times its diameter from compound eye. Propodeal concavity not limited by a superior ridge; front femur with a ridged basal protuberance (a little less prominent than in *boregoensis*) and a slight swelling at apical two-thirds;

front trochanter with a curved and flattened process which is a little longer than seventh antennal segment. Seventh sternite nearly flat, apical margin practically straight. Length of body to apex of second tergite 7.0 mm.

Female. Markings about as in male except as follows: mandible mostly red, lower half of clypeus black, upper half ivory, scape black, pronotum partly red, propodeum almost entirely red, mid and hind femur mostly red, abdominal tergite I with connected median and lateral red spots, venter mostly reddish and brown. Clypeus minutely bidentate at apex. Length of third antennal segment slightly greater than that of tenth and as great as the width of tenth. Lateral ocellus removed by about 2 diameters from compound eye.

Holotype, male, Calif. Acad. Sci., Ent., No. 5995, 1000 PALMS, SAN BERNARDINO CO., CALIFORNIA, on *Eriogonum reniforme*, April 10, 1937 (P. H. Timberlake). Paratypes, 2 males, same data as type; 1 pair, 13 miles east of Needles, San Bernardino Co., California, on *Eriogonum inflatum*, June 5, 1938 (P. H. Timberlake). 1 male, Mohave, Kern Co., California, June 8, 1938 (F. T. Scott). Paratypes have been placed in the collections of the U. S. National Museum, Museum of Comparative Zoology at Harvard, P. H. Timberlake, and the writer.

This species is closely related to *boregoensis* as indicated by the structure of the front femur in the male. The principle differences are in color and in the male antennæ which are stouter in *desertorum*.

Euparagia boregoensis R. Bohart, new species

Male. Black, marked with ivory and some dark reddish, eyes dark grey. Ivory are: basal two thirds of mandible, large central area of clypeus, dot on scape, dot near hind ocellus, pronotum partly (a large black spot in front of tegula), dot on tegula, parategula minutely, mesopleural spot, mesonotal spot, spots at apex of femora and tibiæ, tarsi mostly, convex apical bands on abdominal tergites attached to large lateral spots. Dark reddish are: mandible toward apex, clypeal teeth, tegula mostly, propodeum near attachment of abdomen, legs partly, lateral spot on abdominal tergite I, spot on VI. Venter of abdomen brownish and brownish red, traces of ivory on II and III. Wings transparent, hyaline. Pubescence moderately thick and silky on clypeus and front, fairly dense and silvery on mesopleuron. Puncturation as in other members of genus, moderate and close, granular on clypeus. Antenna relatively slender, third segment distinctly longer than diameter of tenth segment, last segment slightly incurved below, about 1.5

times as long as its basal diameter and bluntly rounded at tip; clypeus bidentate and deeply cleft at apex; lateral ocellus removed by 1.5 times its diameter from compound eye. Propodeal concavity not limited by a superior ridge; front femur with a prominent, ridged basal protuberance and a swelling at apical two-thirds, front trochanter with a curved and flattened process which is about as long as seventh antennal segment. Seventh sternite nearly flat, apical margin slightly outcurved. Length of body to apex of second tergite 7.0 mm.

Female. Markings about as in male except as follows: mandible mostly red, clypeus black with a transverse basal ivory spot, pronotum with a large red spot, propodeum largely red, mid and hind femora mostly red, tergite I with reddish extending across middle. Clypeus minutely bidentate at apex. Length of third antennal segment greater than that of tenth and as great as width of tenth. Lateral ocellus separated by a little more than 2 diameters from compound eye.

Holotype, male, Calif. Acad. Sci., Ent., No. 5996, BOREGO VALLEY, SAN DIEGO CO., CALIFORNIA, on *Eriogonum*, April 5, 1940 (R. M. Bohart). Paratypes, 1 male and 1 female, some data as type but collected April 8, 1939. Paratypes are in the writer's collection.

This species is close to *desertorum* but much darker and with more slender antennæ, especially in the male. The type series was collected on a rocky outcropping about five miles south of the Borego Post Office.

EUPARAGIA PLATINICEPS R. Bohart

Euparagia platiniceps R. Bohart, 1938. Pan-Pac. Ent. 14:318. Male.

Male (additional characters): Antenna yellowish beneath, third segment longer than tenth, its length as great as width of tenth; lateral ocellus removed by slightly more than 1 diameter from compound eye. Apical margin of seventh sternite not incurved at middle.

Female (previously undescribed): Markings about as in male except as follows: mandible mostly red, clypeus black except for red tip, propodeum largely brownish red, abdominal marks ivory and brownish red, latter somewhat more extensive than in male. Lateral ocellus separated by 2 diameters from compound eye.

Records: California: 2 males, Lone Pine, Inyo Co., (type locality), June, 1937, (N. W. Frazier); 1 female, Brown, Inyo Co.,

on *Eriogonum*, June 11, 1942 (R. M. Bohart); 4 males and 1 female, 1000 Palms, San Bernardino Co.; on *Eriogonum reniforme*, April 10, 1937 (P. H. Timberlake); 2 males and 2 females, near Palm Springs, Riverside Co., on *Eriogonum*, *Euphorbia* and *Croton*, April, May and June (P. H. Timberlake, R. M. Bohart); 1 female, near Edom, Riverside Co., on *Larrea*, April 12, 1937 (E. G. Linsley).

EUPARAGIA SCUTELLARIS Cresson

Euparagia scutellaris Cresson, 1879. Proc. Acad. Nat. Sci., Phila., Ent. Sec. 6:6. male, female (monobasic genotype).

Euparagia maculifrons Bradley, 1922. Univ. Calif. Pub. Ent. 1:384. In error.

Old Records: California: Lake Tahoe; Sobre Vista, Sonoma Co.; Mt. Diablo; Yosemite; Santa Cruz Mts.; Santa Clara Co.; Palo Alto; Kaweah, Tulare Co.; Claremont. Nevada (type locality).

New Records: California: 1 female, Davis Creek, Modoc Co., July 17, 1922 (C. L. Fox); 1 male, Glen Ellen, Sonoma Co., May 19, 1938 (A. T. McClay); 1 male, El Portal, Mariposa Co., May 18, 1938 (R. M. Bohart); 1 pair, Paraiso Springs, Monterey Co., May and June (L. S. Slevin); 1 pair, near Coalinga, Fresno Co., June 8, 1941 (R. M. Bohart); 1 male, near Newhall, Los Angeles Co., April 20, 1940 (R. M. Bohart).

EUPARAGIA MACULICEPS (Cameron)

Plesiomasaris maculiceps Cameron, 1904. Trans. Amer. Ent. Soc. 30:267. Male.

Odynerus simplicipes Cameron, 1905. Trans. Amer. Ent. Soc. 31:380. Male.

Odynerus vicarius. Schulz, 1906. Spolia Hymenopterologica, p. 219. New name for *simplicipes* Cameron.

Psiloglossa simplicipes Rohwer, 1909. Ent. News 20:357. Female.

Old Records: New Mexico: Las Cruces; Mexico: Guerrero (type locality).

New Records: Arizona: two females, Tucson, July 25, 1940 (J. Bequaert); Texas: females, Knippa, July 3-6, 1910 (F. C. Pratt).